ARGUMENTS/REMARKS

This communication is responsive to the Office Action dated June 27, 2007.

Claims 1-55 remain pending.

The Office Action

In the Office Action of June 27, 2007, the Examiner made the following rejections:

Claims 2-9, 11-18, 20, 21, 31, 34-36, 38, 42-44 and 50 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

Claims 1, 4, 5, 11-13, 16 and 34 were rejected under 35 U.S.C. §102 (b), as being anticipated by, or under 35 USC § 103(a) as being obvious over, Hirano et al (U.S. Patent No. 5,028,495).

Claims 1, 4, 5, 11-13, 16 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Jha et al (U.S. Patent No. 5,553,770).

Claims 1-3, 7, 8, 10-13, 16, 19, 20, 22, 25, 26, 29 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Mennucci (U.S. Patent No. 5,761,799).

Claims 1, 4, 5, 10, 11-16 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Galasso et al (U.S. Patent No. 4,034,454).

Claims 1-30, 34-46, 49, 50 and 53-55 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Hirano et al (JP 4-006173).

Claims 32, 33, 47, 48, 51 and 52 were objected to as being dependent upon a rejected base claim but otherwise identified as being allowable.

Claims 31 was identified as being allowable if amended to overcome the rejection under 35 U.S.C. §112, second paragraph.

The Rejections Under 35 U.S.C §112

Claims 2-9, 11-18, 20, 21, 31, 34-46, 38, 42-44 and 50 were rejected under 35 U.S.C. §112, second paragraph, as the examiner maintains that the term "commercially pure" is unclear since it can change over time.

In the prior response, Applicants submitted that the materials used in the invention are to be as pure as whatever is commercially available. Should higher purity materials become available than what was known at the time of the invention, then those materials would be preferred over what was commercially available at the present time and would work just as well as the presently available commercial materials.

In addition to the above, and as pointed out in the previously filed response, Applicants would like to note that a quick search on the USPTO's online database revealed at least 143 issued U.S. patents with the term "commercially pure" in the claims. This includes U.S. Patent No. 6,783,870, assigned to the applicant of the present application (Engineered Material Solutions). See attached listing of issued U.S. patents which contain the term "commercially pure" in the claims (Exhibit "A").

Further, an internet search using "Google" revealed a number of technical reports and technical dictionary definitions of the term "commercially pure" in relation to metals such as copper and nickel.

Again, the intent is to use material which has a purity level that is as high as commercially available. Applicants believe that this is clear and definite within the meaning of 35 U.S.C. §112, second paragraph and supported by the ***issuance of a number of U.S. patents*** with the exact same language, including one to the present applicant.

In view of the above, withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claim 42 was rejected under 35 U.S.C §112, second paragraph, as the examiner indicated that it was unclear what was meant by "is made from one of a group consisting of copper and nickel". Applicants submit that the terminology is clear. When, for example, the first metallic layer is "copper", then the third metallic layer is "nickel" (which is the "other" of the two not used for the first layer). Likewise with the material for the forth and sixth layers. Applicants believe this is clear and definite. However, in an attempt to address the Examiner's concern, Applicants have now amended claim 42 in a manner similar to that suggested by the Examiner. The amended claim now requires that when the first layer is made from a metal selected from the group consisting of copper or nickel then the third layer is made from the other metal selected from the group consisting of copper or nickel. The same amendment was made for layers four and six in claim 42.

Applicants believe that the above comments and amendments fully address the rejections under 35 U.S.C §112, second paragraph. Reconsideration and withdrawal of the rejections are therefore respectfully requested.

The Rejections Under 35 U.S.C §102(b)

Claims 1, 4, 5, 11-13, 16 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Hirano et al (U.S. Patent No. 5,028,495). Further, claims 1, 4, 5, 11-13, 16 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Jha et al (U.S. Patent No. 5,553,770). Also, claims 1, 4, 5, 10, 11-16 and 34 were rejected under 35 U.S.C. §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Galasso et al (U.S. Patent No. 4,034,454).

Applicants would like to address the above three references of Hirano et al, Jha et al and Galasso et al as all three references require a heat treatment step of the material. The products of the invention which result from a roll bonding process without any intermediate heat treatment step are not the same as those produced from processes which utilize a heating step.

Applicants would like to emphasize that the materials used in the present invention, in particular Ti and/or Zr, possess unique characteristics and qualities which limit the way in which they can be processed into useful materials. The prior art cited by the Examiner clearly fails to recognize these unique characteristics and the drawbacks which are realized by processing these materials in a manner requiring intermediate heat treatment steps, such as annealing.

Specifically, roll bonding of metal layers to Ti (and/or Zr) requires cold working and thus hardens the strip. As disclosed in the specification, roll bonding is typically carried out in a bonding mill that provides sufficient pressure to form a metallurgical bond without heat treating (such as annealing, for example) between dissimilar metals. It is therefore common metal working practice to put such cold worked strips through an annealing process to soften it up for any further cold rolling. This is what the prior art cited by the Examiner does. The annealing requires time at elevated

temperatures and usually requires a protective atmosphere to avoid forming surface scales. The annealing process conditions that are likely to apply to the strip have two problems that will cause strip to become brittle. The resulting strip is then not able to be further cold rolled to the foil gauge for brazing filler application due to its brittleness. Further, the time and temperature will cause interdiffusion between Ti/Zr and Cu/Ni layers. The resultant intermetallic compounds between Ti/Zr and Cu/Ni are extremely brittle and will crack between layers under the cold rolling condition. A second issue is the gas used as the protective atmosphere. The commonly used gas is either nitrogen or hydrogen or a mixture of nitrogen and hydrogen, which will be absorbed into the Ti/Zr and cause further embrittlement. This will also render the strip even more unworkable. In summary, there are many metallurgical reasons that clad strips of the invention not be processed with conventional rolling and annealing practices as taught in the cited art. On the other hand, by cladding layers to the surfaces of Ti or Zr without an intermediate heating step, the ability to roll the clad strip to far more thickness reduction than what is possible on the Ti or Zr by itself or when clad with materials using an intermediate heating step is achieved. **This is completely unexpected and not taught or suggested by the cited art.**

Moreover, the Examiner is ignoring the limitation that the final "brazing strip or foil" is complete upon roll bonding without need for further treatment as instructed by the cited art. As such, it is our position that the **prior art actually teaches away from the invention by including additional heat treatment steps and not recognizing that such steps are not required or encompassed by the current claims to produce the claimed brazing strip/foil.**

In view of the above, the references of Hirano et al, Jha et al and Galasso et al do not teach the material of the invention as the heating steps used to prepare these products result in a clad

material which is not the same as the claimed material which is made by a process which does not include any intermediate heating. As such, Hirano et al, Jha et al and Galasso et al neither anticipate nor obviate the designated claims under 35 USC § 102(b) or 103(a) and the rejections thereover should be withdrawn.

Claims 1-3, 7, 8, 10, 11-13, 16, 19, 20, 22, 25, 26, 29 and 34 were rejected under 35 U.S.C §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Mennucci (U.S. Patent No. 5,761,799).

The process of Mennucci et al required inclusion of platinum stripes (item no 15) to the surface of a copper layer which is to be bonded to a titanium base material. No such platinum stripes are present in the material of the invention. As such, the material of Mennucci et al is not the same as the material of the invention. Moreover, the product of Menucci is not a brazing strip or foil but rather a laminate which is essentially a platinum coated titanium strip useful as anodes in chemical processing or in electrical conductor applications. No mention is made of using the platinum coated materials as brazing strips or foils. In fact, alloying of platinum (Pt) is needed in order to bring the Pt to a melting point necessary for brazing operations. Without such alloying of the Pt, it will not function as a brazing material and will remain as a discreet layer. Mennucci does not alloy the Pt as the Pt materials used therein are not intended for use as a brazing material and does not need to possess the melting properties required by brazing materials. As such, Mennucci fails to anticipate the claims under 35 U.S.C. §102 (b) or render the claims obvious under 35 USC § 103(a). Withdrawal of the rejection is respectfully requested.

Claims 1-30, 34-45, 48, 49 and 52-54 were rejected under 35 U.S.C §102 (b) as being anticipated by, or under 35 USC § 103(a) as being obvious over, Hirano et al (JP 4-006173).

With respect to Hirano et al (JP), no mention is made of any metallic bond being present between layers, muchless that the bond was formed solely by roll bonding the materials together without any intermediate heating step. As discussed above, materials of the invention which contain a Ti or Zr core material which are produced without the intermediate heating are materially different from those produced in a process which utilizes some heating. While Hirano teaches "coating" a Zr base with a special Cu/Ti/Ni-Cu composite, rolling and **annealing** are required as seen in the translation at pages 6 and 7. Again, the claims of the present invention specifically require the absence of any intermediate heat treating (i.e. annealing is a heat treatment) prior to forming the final brazing strips or foils. Thus a reference which teaches some heating step prior to formation of the finished product does exactly what the claims exclude.

Moreover, the claims of the present invention require only one core, either Zr, Ti or a blend of Zr and Ti. The material of Hirano et al has a Zr core and then a material having a second Ti core (the Cu/Ti/Ni-Cu) material. This is not the same as the invention. As such, Claims 1-30, 34-45, 48, 49 and 52-54 are not anticipated by or obvious over the Hirano et al (JP) reference. Withdrawal of the rejection is therefore respectfully requested.

Conclusion

In consideration of the foregoing analysis, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

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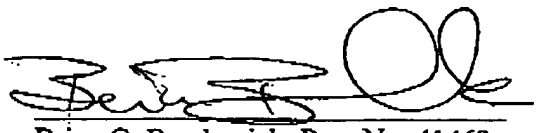
If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. EMSI-34180US2.

Respectfully submitted,

PEARNE & GORDON LLP

By: 

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Date: December 27, 2007

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Refine Search ACLM/"commercially pure"

	PAT. NO.	Title
1	7,311,873	Process of direct powder rolling of blended titanium alloys, titanium matrix composites, and titanium aluminides
2	7,261,914	Method and apparatus for forming a nitride layer on a biomedical device
3	7,241,328	Method for preparing ultra-fine, submicron grain titanium and titanium-alloy articles and articles prepared thereby
4	7,205,179	Hydrogen diffusion hybrid port and method of making
5	7,201,210	Casting of aluminum based wrought alloys and aluminum based casting alloys
6	7,174,212	Implantable medical device having a casing providing high-speed telemetry
7	7,137,436	Method and apparatus for melting titanium using a combination of plasma torches and direct arc electrodes
8	7,048,590	High performance, high capacitance gain, jack connector for data transmission or the like
9	7,022,911	Apparatus and method for providing electrostatic discharge protection
10	7,009,176	Titanium ion transfer components for use in mass spectrometry
11	6,964,587	High performance, high capacitance gain, jack connector for data transmission or the like
12	6,919,623	Hydrogen diffusion hybrid port and method of forming
13	6,814,820	Heat treatment of titanium-alloy article having martensitic structure
14	6,797,662	Electrically conductive ceramics
15	6,797,006	Porous unicondylar knee
16	6,783,870	Self-brazing materials for elevated temperature applications
17	6,763,524	Titanium wire face guard

EXHIBIT A

18 6,749,610 Electro-surgical forceps having fully plated tines and process for manufacturing same
19 6,740,186 Method of making an orthopeadic implant having a porous metal surface
20 6,731,849 Coating for optical fibers
21 6,638,381 Method for preparing ultra-fine grain titanium and titanium-alloy articles and articles prepared thereby
22 6,637,091 Method for making titanium wire face guard
23 6,610,962 Method for producing a crack resistant weld
24 6,591,636 Material and method for coating glass forming equipment
25 6,553,097 X-ray tube anode assembly and x-ray systems incorporating same
26 6,543,273 Efficient use of metallic materials for dynamic tear testing
27 6,542,566 Cladding for use in nuclear reactors having improved resistance to stress corrosion cracking and corrosion
28 6,541,735 Bearing shaft assembly having a crack resistant weld
29 6,517,801 Treatment of gas streams containing hydrogen sulphide
30 6,419,491 Dental implant system with repeating microgeometric surface patterns
31 6,410,165 Crack resistant weld
32 6,335,512 X-ray device comprising a crack resistant weld
33 6,325,805 Shape memory alloy staple
34 6,322,364 Superplastically-formed prosthetic components, and equipment for same
35 6,312,473 Orthopedic implant system
36 6,273,990 Method and apparatus for removing a protective coating from an optical fiber and inhibiting damage to same
37 6,248,105 Device for connecting a longitudinal support with a pedicle screw
38 6,243,433 Cladding for use in nuclear reactors having improved resistance to stress corrosion cracking and corrosion
39 6,210,807 Surface oxidation of a titanium or titanium alloy article
40 6,199,259 Autoclave bonding of sputtering target assembly
41 6,123,899 Master alloy hardeners
42 6,116,070 Superplastically-formed prosthetic components, and equipment for same
43 6,102,954 Joint prosthesis and apparatus for preparing the bone prior to fitting of the prosthesis
44 6,048,204 Self tapping screw type dental implant
45 6,021,155 Heat treating furnace having improved hot zone
46 5,961,329 Combination distraction dental implant and method of use
47 5,868,875 Non-ridging ferritic chromium alloyed steel and method of making
48 5,843,289 Surface modification of medical implants
49 5,814,048 Cranioplasty plates and method of installation
50 5,812,925 Low temperature bonding of materials

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Refine Search ACLM/"commercially pure"

	PAT. NO.	Title
51	5,800,895	Beryllium memory disk substrate for computer hard disk drive and process for making
52	5,769,637	Dental implant and alveolar process augmentation structures and method of installation
53	5,744,254	Composite materials including metallic matrix composite reinforcements
54	5,732,767	Corrosion resistant heat exchanger and method of making the same
55	5,527,995	Cable for conducting energy
56	5,486,340	Exhaust gas conditioning
57	5,443,510	Porous coated implant and method of making same
58	5,442,929	Cryogenically-treated electrical contacts
59	5,435,375	Titanium composite casting nozzle
60	5,429,780	Manufacture of silicon carbide foam from a polyurethane foam impregnated with resin containing silicon
61	5,423,820	Surgical cable and crimp
62	5,418,072	Totally consumable brazing encapsulate for use in joining aluminum surfaces
63	5,405,578	Method for preparing master alloy hardeners for use in preparing an aluminum alloy
64	5,399,376	Meniscus coating steel strip
65	5,371,178	Rapidly curing adhesive and method
66	5,332,454	Titanium or titanium based alloy corrosion resistant tubing from welded stock

67 5,330,587 Shaft of laser nitride-hardened surface on titanium
68 5,326,851 Low-viscosity polyarylene sulfides
69 5,326,362 Method of surface hardening orthopedic implant devices
70 5,316,863 Self-brazing aluminum laminated structure
71 5,314,672 Composition and method for sweetening hydrocarbons
72 5,290,368 Process for producing crack-free nitride-hardened surface on titanium by laser beams
73 5,248,386 Milling solution and method
74 5,233,060 Ethylene recovery in direct-oxidation ethylene oxide processes
75 5,226,981 Method of manufacturing corrosion resistant tubing from welded stock of titanium or titanium base alloy
76 5,215,624 Milling solution and method
77 5,203,982 Cation exchange membranes
78 5,198,308 Titanium porous surface bonded to a cobalt-based alloy substrate in an orthopaedic implant device
79 5,152,795 Surgical implants and method
80 5,124,528 Gas tungsten and plasma arc welding electrode having a carbide emitter end
81 5,100,500 Milling solution and method
82 5,092,760 Oxygen-fuel burner assembly and operation
83 5,073,356 Integrated processes for the production of carbon monoxide
84 5,057,133 Thermally efficient melting and fuel reforming for glass making
85 5,006,141 Thermally efficient melting for glass making
86 5,004,420 Dental bridge and manner for preparation
87 4,999,051 System and method for atomizing a titanium-based material
88 4,987,033 Impact resistant clad composite armor and method for forming such armor
89 4,980,127 Oxidation resistant titanium-base alloy
90 4,954,708 Low distortion focal plane platform
91 4,899,670 Means for providing oxygen enrichment for slurry and liquid fuel burners
92 4,886,651 Process for co-production of higher alcohols, methanol and ammonia
93 4,876,065 Corrosion-resisting Fe-Ni-Cr alloy
94 4,869,741 Ultra pure liquid oxygen cycle
95 4,863,474 Skeletal implants
96 4,854,496 Porous metal coated implant and method for producing same
97 4,836,723 Spindle assembly
98 4,834,919 Stereoselective reduction of the keto group at 7-position of a bile keto acid
99 4,717,068 Process for plating Al alloys containing Li, by hot co-rolling
100 4,712,550 Retinal tack

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Refine Search ACLM/"commercially pure"

	PAT. NO.	Title
101	4,708,860	Split-flow regeneration in absorptive air separation
102	4,695,318	Method of making steel
103	4,687,512	Desulfurizing mixture for metal melts, process for making it, and process for desulfurizing liquid metal therewith
104	4,673,967	Surface mounted system for leaded semiconductor devices
105	4,648,901	Introducing one or more metals into a melt comprising aluminum
106	4,645,453	Bendable adapter for dental implant
107	4,636,219	Prosthesis device fabrication
108	4,608,227	Sintered titanium horseshoes
109	4,589,960	Activated metal anodes and a process for making them
110	4,581,064	Treatment of anode slimes in a top blown rotary converter
111	4,565,685	Air separation with temperature and pressure swing
112	4,564,393	Introducing one or more metals into a melt comprising aluminum
113	4,559,089	Method for making a light weight composite of pure aluminum, heat treatable aluminum, and stainless steel
114	4,544,116	Helicopter landing skid shoe pad
115	4,542,114	Process for the recovery and recycle of effluent gas from the regeneration of particulate matter with oxygen and carbon dioxide
116	4,526,775	Oxygen production by molten alkali metal salts using multiple absorption-desorption cycles
117	4,519,401	Pressure telemetry implant

118 4,464,442 Brazing alloy
119 4,408,982 Process for firing a furnace
120 4,313,759 Wear resistant aluminium alloy
121 4,216,089 Waste water treatment
122 4,201,902 Electrode for air-carbon arc cutting and gouging
123 4,180,547 Process for recovery of chemicals from saline water
124 4,179,287 Method for adding manganese to a molten magnesium bath
125 4,178,174 Direct production of copper metal
126 4,170,326 Method and holding fixture for soldering lead frames to hybrid substrates
127 4,165,979 Flash smelting in confined space
128 4,156,268 Humidity sensing element and method of manufacture thereof
129 4,148,630 Direct production of copper metal
130 4,137,032 Corrosion-resistant spinneret
131 4,129,438 Method of adding trace elements to base metals
132 4,125,924 Method of producing composite metal pipe
133 4,119,701 NO.sub.x reduction catalyst for internal combustion engine emission control
134 4,118,291 Method of electrowinning titanium
135 4,116,801 Apparatus for electrowinning multivalent metals
136 4,110,180 Process for electrolysis of bromide containing electrolytes
137 4,085,997 Anodize clamp
138 4,072,511 Method of producing silicon containing cast iron
139 4,064,221 Process for obtaining nitric acid of a concentration higher than the azeotropic concentration by means of the absorption of nitrogen oxides in water or diluted nitric acid
140 4,054,468 Process of making a laminated spinneret
141 4,006,105 NO.sub.x reduction catalyst for internal combustion engine emission control
142 3,984,231 Process for the two-stage reduction of iron ore in a rotary kiln
143 3,960,546 Method for eliminating nose-skulls from steelmaking vessels

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